

L Number	Hits	Search Text	DB	Time stamp
1	2229	(SiC SiOC SiCO (silicon adj (oxycarbide carbide))) near10 (cu or copper)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/10/11 09:32
8	321	((SiC SiOC SiCO (silicon adj (oxycarbide carbide))) near10 (cu or copper)) and (438/\$.ccls. 257/\$.ccls.)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/10/11 08:14
15	151936	(reduc\$3 react\$3 remov\$3) near4 (oxide CuO)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/10/11 08:16
22	50	((SiC SiOC SiCO (silicon adj (oxycarbide carbide))) near10 (cu or copper)) and (438/\$.ccls. 257/\$.ccls.) and ((reduc\$3 react\$3 remov\$3) near4 (oxide CuO))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/10/11 09:04
29	1	(ibm or (international adj business adj machine\$1)).asn. and (ALD or ALE or ALCVD or AL-CVD) and nitrates	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/10/11 09:05
57	4	((SiC SiOC SiCO (silicon adj (oxycarbide carbide))) near10 (cu or copper)) and ((SiOC SiCO (silicon adj oxycarbide)) near10 (stop stopper barrier cap capping difussion diffusion))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/10/11 09:34
50	45	(SiOC SiCO (silicon adj oxycarbide)) near10 (stop stopper barrier cap capping difussion diffusion)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/10/11 09:35

SYSTEM:OS - DIALOG On-Search

File 2:INSPEC 1960-2002/Oct W1

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***File 2: Alert feature enhanced for multiple files, duplicates removal, customized scheduling. See HELP ALERT.**

File 8:EI Compendex(R) 1970-2002/Sep W5

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***File 8: Alert feature enhanced for multiple files, duplicates removal, customized scheduling. See HELP ALERT.**

File 94:JICST-EPlus 1985-2002/Aug W2

(c)2002 Japan Science and Tech Corp(JST)

File 144:Pascal 1973-2002/Oct W1

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Set	Items	Description
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Processing		
	425867	REMOV?
	1981251	REDUC?
	38375	CUO
	561	CU2O
	426446	CU
	5869601	2
	1323207	O
	12549	CU(2W)2(2W)O
	426446	CU
	608773	OXIDE
	3538	CU(3N)OXIDE
	1204119	ORGANIC
	326275	ALCOHOL
	43820	ALDEHYDE
	269103	CARBOXYLIC
S1	14	(REMOV? OR REDUC?)(5N)(CUO OR CU2O OR CU(2W)2(2W)O OR CU(3N)OXIDE)(10N)(ORGANIC OR ALCOHOL OR ALDEHYDE OR CARBOXYLIC)
?rd		
...completed examining records		
	S2	11 RD (unique items)
?t s2/full/all		

2/9/1 (Item 1 from file: 2)

DIALOG(R)File 2:INSPEC

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7193380 INSPEC Abstract Number: A2002-07-8245-011

Title: The electrochemical quartz Crystal microbalance as a means for studying the reactivity of Cu/sub 2/O toward lithium

Author(s): Laik, B.; Poizot, P.; Tarascon, J.-M.

Author Affiliation: Lab. de Reactivite et de Chimie des Solides, Univ. de Picardie Jules Verne, Amiens, France

Journal: Journal of the Electrochemical Society vol.149, no.3 p. A251-5

Publisher: Electrochem. Soc,

Publication Date: March 2002 Country of Publication: USA

CODEN: JESOAN ISSN: 0013-4651

SICI: 0013-4651(200203)149:3L.a251:EQCM;1-#

Material Identity Number: J010-2002-002

U.S. Copyright Clearance Center Code: 0013-4651/2002/149(3)/251/5/\$7.00

Document Number: S0013-4651(02)01603-8

Language: English Document Type: Journal Paper (JP)

Treatment: Applications (A)

Abstract: Transition-metal oxides (M/sub x/O/sub y/ where M is Co, Ni, Cu, or Fe) were recently reported to reversibly react with Li through a mechanism that differs from the classical Li insertion/deinsertion or Li-alloying ones. We report on the peculiar electrochemical reactivity of copper oxide (Cu/sub 2/O) toward lithium, as deduced from the use of an electrochemical quartz crystal microbalance (EQCM). First, the

electrodeposition parameters (current, pH, temperature, ...) to prepare single-phase, homogeneous, and weight-controlled Cu/sub 2/O deposits on a Ti-plated quartz crystal are reported. Then, an electrochemical cell using the Cu/sub 2/O deposit as the positive electrode and Li as the negative electrode was cycled over the 3-0.02 V range, and the Cu/sub 2/O weight evolution was monitored. We show that the weight vs. the number of reacted Li/sup +/- curve does not change smoothly, but exhibits different sloping weight regimes that were broadly linked to the different electrochemical processes (**reduction of Cu /sub 2 / O** into Cu plus growth of an **organic** layer) already mentioned. Therefore, we show that these processes do not occur separately but in conjunction, highlighting the positive attributes of the EQCM technique. (23 Refs)

Subfile: A

Descriptors: chemical reactions; copper compounds; crystal resonators; electrochemical electrodes; electrochemistry; lithium; microbalances; pH; secondary cells

Identifiers: electrochemical quartz crystal microbalance; reactivity; Li; mechanism; electrochemical reactivity; electrodeposition parameters; reduction; current; pH; temperature; Ti-plated quartz crystal; electrochemical cell; positive electrode; negative electrode; Cu/sub 2/O weight evolution; 3 to 0.02 V; Cu/sub 2/O; SiO/sub 2/:Ti

Class Codes: A8245 (Electrochemistry and electrophoresis); A8630F (Secondary cells)

Chemical Indexing:

Cu2O bin - Cu2 bin - Cu bin - O bin (Elements - 2)

SiO2:Ti sur - SiO2 sur - O2 sur - Si sur - Ti sur - O sur - SiO2:Ti ss - SiO2 ss - O2 ss - Si ss - Ti ss - O ss - SiO2 bin - O2 bin - Si bin - O bin - Ti el - Ti dop (Elements - 2,1,3)

Li el (Elements - 1)

Numerical Indexing: voltage 2.0E-02 to 3.0E+00 V

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2/9/2 (Item 2 from file: 2)

DIALOG(R) File 2:INSPEC

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6409238 INSPEC Abstract Number: B1999-12-2550F-052

Title: Electrochemical, contact angle, and spectroscopic characterization of metal films during copper damascene processing

Author(s): Carpio, R.A.; Hymes, S.; Mikkola, R.; Pavlov, M.

Author Affiliation: SEMATECH, Austin, TX, USA

Conference Title: Proceedings of the Symposia on Electrochemical Processing in ULSI Fabrication I and Interconnect and Contact Metallization: Materials, Processes, and Reliability p.206-20

Editor(s): Andricacos, P.C.; Dukovic, J.O.; Mathad, G.S.; Oleszek, G.M.; Rathore, H.S.; Reidsema Simpson, C.

Publisher: Electrochem. Soc, Pennington, NJ, USA

Publication Date: 1999 Country of Publication: USA viii+274 pp.

ISBN: 1 56677 200 1 Material Identity Number: XX-1999-01999

Conference Title: Proceedings of the Symposia on Electrochemical Processing in ULSI Fabrication I and Interconnect and Contact Metallization: Materials, Processes, and Reliability

Conference Date: 4-5 May 1998 & 1-6 Nov. 1998 Conference Location: San Diego, CA, USA & Boston, MA, USA

Language: English Document Type: Conference Paper (PA)

Treatment: Practical (P); Experimental (X)

Abstract: Localized cathodic chronopotentiometric measurements were utilized to determine the thickness and type of oxide as well as for detection of the presence of **reducible organic** films on copper surfaces. It was found that Cu /sub 2 / O is the principal oxide formed by CMP using hydrogen peroxide based slurries. The oxide thickness is generally in the 20 to 30 AA range after CMP, but this thickness is reduced to approximately half by a typical brush cleaning process. Anodic chronopotentiometry was utilized for Cu thickness measurements. Other DC and AC electrochemical measurements were performed to characterize the corrosion properties of processed copper and barrier metal film surfaces.

The corrosion properties of copper were dependent upon the electrolyte utilized for the measurements. Sessile contact angle measurements were valuable for studying the spatial variation of the wetting properties of processed copper films. FTIR spectroscopy is shown to have the capability for monitoring the Cu/sub 2/O thickness. (13 Refs)

Subfile: B

Descriptors: chemical interdiffusion; contact angle; copper; corrosion; diffusion barriers; electrochemical analysis; Fourier transform spectra; integrated circuit interconnections; integrated circuit measurement; integrated circuit metallisation; oxidation; process monitoring; wetting

Identifiers: spectroscopic characterization; contact angle characterization; electrochemical characterization; metal films; copper damascene processing; localized cathodic chronopotentiometric measurements; oxide type; oxide thickness; reducible organic films; copper surfaces; Cu/sub 2/O principal oxide; CMP; hydrogen peroxide based slurries; brush cleaning process; anodic chronopotentiometry; Cu thickness measurements; AC electrochemical measurements; DC electrochemical measurements; corrosion properties; processed copper film surfaces; barrier metal film surfaces; Cu corrosion properties; measurement electrolyte; sessile contact angle measurements; wetting properties; FTIR spectroscopy; Cu/sub 2/O thickness monitoring; 20 to 30 angstrom; Cu; Cu/sub 2/O; H/sub 2/O/sub 2/

Class Codes: B2550F (Metallisation and interconnection technology); B2570 (Semiconductor integrated circuits); B2550E (Surface treatment (semiconductor technology)); B2530D (Semiconductor-metal interfaces)

Chemical Indexing:

Cu sur - Cu el (Elements - 1)

Cu2O int - Cu2 int - Cu int - O int - Cu2O bin - Cu2 bin - Cu bin - O bin (Elements - 2)

H2O2 bin - H2 bin - O2 bin - H bin - O bin (Elements - 2)

Numerical Indexing: size 2.0E-09 to 3.0E-09 m

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2/9/3 (Item 3 from file: 2)

DIALOG(R) File 2:INSPEC

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6264672 INSPEC Abstract Number: A1999-13-6855-105

Title: Copper-oxide thin films prepared from Langmuir-Blodgett films

Author(s): Schurr, M.; Seidl, M.; Brugge, A.; Voit, H.

Author Affiliation: Phys. Inst., Erlangen-Nurnberg Univ., Germany

Journal: Thin Solid Films vol.342, no.1-2 p.266-9

Publisher: Elsevier,

Publication Date: 26 March 1999 Country of Publication: Switzerland

CODEN: THSFAP ISSN: 0040-6090

SICI: 0040-6090(19990326)342:1/2L.266:COTF;1-P

Material Identity Number: T070-1999-011

Document Number: S0040-6090(98)01448-5

Language: English Document Type: Journal Paper (JP)

Treatment: Experimental (X)

Abstract: Ultrathin films of **CuO** have been prepared using an **organic** precursor (Langmuir-Blodgett multilayer films consisting of Cu-arachidate). The **organic** component was **removed** either by thermodesorption or by UV-desorption. In the former case discontinuous films consisting of an ensemble of droplets were obtained. UV-desorption with successive heating results in continuous and rather smooth films. A surface roughness of 2.3 nm was deduced for one of these films from an atomic-force-microscope analysis. The films are transparent in the visible range. (17 Refs)

Subfile: A

Descriptors: atomic force microscopy; copper compounds; Langmuir-Blodgett films; photon stimulated desorption; Rutherford backscattering; surface topography; thermally stimulated desorption; thin films; transparency

Identifiers: copper-oxide; ultrathin films; Langmuir-Blodgett multilayer films; Cu-arachidate; organic precursor; thermodesorption; UV-desorption; droplet ensemble; discontinuous films; continuous smooth films; surface roughness; atomic-force-microscope analysis; transparent films; visible spectra; RBS; Rutherford backscattering; elastic recoil detection analysis;

400 to 900 nm; CuO

Class Codes: A6855 (in film growth, structure, and epitaxy); A6817 (Monolayers and Langmuir-Blodgett films); A7755 (Dielectric thin films); A7820D (Optical constants and parameters (condensed matter)); A7865P (Optical properties of other inorganic semiconductors and insulators (thin films/low-dimensional structures)); A7920N (Atom-, molecule-, and ion-surface impact and interactions)

Chemical Indexing:

CuO bin - Cu bin - O bin (Elements - 2)

Numerical Indexing: wavelength 4.0E-07 to 9.0E-07 m

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2/9/4 (Item 1 from file: 8)

DIALOG(R) File 8: Ei Compendex(R)

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04131632 E.I. No: EIP95042651943

Title: Effect of PTFE addition on the transfer film, wear and friction of PEEK-CuO composite

Author: Voort, J. Vande; Bahadur, S.

Corporate Source: Iowa State Univ, Ames, IA, USA

Conference Title: Proceedings of the Energy-Sources Technology Conference and Exhibition

Conference Location: Houston, TX, USA Conference Date: 19950129-19950201

Sponsor: ASME

E.I. Conference No.: 42772

Source: Tribology Symposium 1995 American Society of Mechanical Engineers, Petroleum Division (Publication) PD v 72 1995. ASME, New York, NY, USA. p 169-176

Publication Year: 1995

CODEN: ASMPEX

Language: English

Document Type: CA; (Conference Article) Treatment: X; (Experimental)

Journal Announcement: 9506W1

Abstract: In order to reduce the coefficient of friction, the organic filler was added to the CuO-PEEK composite so as to increase its appeal for practical applications. Initially, the optimum volume fraction of CuO in PEEK was determined for minimum wear by varying the proportion of the inorganic filler. With this composition as the basis for total filler content, PTFE was added to CuO-filled composites in 5 and 10 vol.% proportions. It was determined from the experiment that the optimum filler proportion of CuO in PEEK for minimum wear rate was 35 vol.%. The optimum composition with PTFE and Cu additions was PEEK-30 vol.% CuO-5 vol.% PTFE. The wear rate and the coefficient of friction both of these compositions were lower than those of PEEK-35 vol.% CuO. 19 Refs.

Descriptors: *Polytetrafluoroethylenes; Composite materials; Copper oxides; Polyether ether ketones; Addition reactions; Wear of materials; Friction; Films; Fillers; Composition effects

Identifiers: Transfer film; Coefficient of friction; Organic filler; Pin on disk configuration; Wear rate; Steel counterface; Inorganic fillers

Classification Codes:

815.1.1 (Organic Polymers)

815.1 (Polymeric Materials); 804.2 (Inorganic Components); 802.2 (Chemical Reactions); 931.1 (Mechanics)

815 (Plastics & Polymeric Materials); 804 (Chemical Products); 802 (Chemical Apparatus & Plants); 421 (Materials Properties); 931 (Applied Physics); 803 (Chemical Agents & Basic Industrial Chemicals)

81 (CHEMICAL PROCESS INDUSTRIES); 80 (CHEMICAL ENGINEERING); 42 (MATERIALS PROPERTIES & TESTING); 93 (ENGINEERING PHYSICS)

2/9/5 (Item 2 from file: 8)

DIALOG(R) File 8: Ei Compendex(R)

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04122342 E.I. No: EI95032641535

Title: Coating of uniform inorganic particles with polymers II. Polyaniline on copper oxide

Author: Huang, Chin-Lin; Partch, Richard E.; Matijevic, Egon

Corporate Source: Clarkson Univ, Potsdam, NY, USA

Source: Journal of Colloid and Interface Science v 170 n 1 Mar 1 1995. p 275-283

Publication Year: 1995

CODEN: JCISA5 ISSN: 0021-9797

Language: English

Document Type: JA; (Journal Article) Treatment: X; (Experimental)

Journal Announcement: 9505W5

Abstract: Uniform spherical colloidal copper oxide particles were coated with polyaniline in the reaction mixtures containing CuO, aniline, water, ethanol, and polyvinyl alcohol (PVA) without the use of a soluble oxidant. The final dispersion consisted of a mixture of CuO with a polymer shell and independent polyaniline (latex) particles. The reaction between aniline and CuO follows the well-known mechanism by which the metal oxide undergoes **reductive** dissolution while the **organic** monomer is oxidized. Oxygen and PVA are essential to the polymerization of aniline in the system. Oxygen may function as an oxidant to promote the polymerization, while PVA forms micelles that enhance the reaction rate through emulsion polymerization and protect polyaniline from hydrolysis. A temperature higher than 90 degree C is necessary for the reaction to achieve a coating of more than 10% by weight in 48 h. The thickness of the polymer shell can be adjusted by changing the reaction time and the concentrations of aniline, copper oxide, and ethanol. The structure of the produced polymer corresponds to that of polyleucoemeraldine. (Author abstract) 34 Refs.

Descriptors: *Particles (particulate matter); Colloids; Organic polymers; Oxidation; Polymerization; Monomers; Hydrolysis; Dissolution; Dispersions; Polyvinyl alcohols

Identifiers: Polyaniline; Aniline; Soluble oxidant; Polymer shell; Reductive dissolution; Organic monomer; Reaction rate; Reaction mixtures; Latex particles; Oxidant

Classification Codes:

815.1.1 (Organic Polymers)

804.2 (Inorganic Components); 801.3 (Colloid Chemistry); 815.1 (Polymeric Materials); 802.2 (Chemical Reactions); 815.2 (Polymerization)

804 (Chemical Products); 801 (Chemical Analysis & Physical Chemistry);

815 (Plastics & Polymeric Materials); 802 (Chemical Apparatus & Plants)

80 (CHEMICAL ENGINEERING); 81 (CHEMICAL PROCESS INDUSTRIES)

2/9/6 (Item 3 from file: 8)

DIALOG(R) File 8: Ei Compendex(R)

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03491507 E.I. Monthly No: EI9210128885

Title: Selective reduction of nitric oxide over Cu-ZSM-5 zeolite by water-soluble oxygen-containing organic compounds.

Author: Montreuil, C. N.; Shelef, M.

Corporate Source: Ford Motor Co, Dearborn, MI, USA

Source: Applied Catalysis B:Environmental v 1 n 1 Feb 19 1992 p L1-L8

Publication Year: 1992

CODEN: ACBEE3 ISSN: 0926-3373

Language: English

Document Type: JA; (Journal Article) Treatment: X; (Experimental)

Journal Announcement: 9210

Abstract: The activity of soluble oxygenated organic compounds for the selective reduction of nitric oxide in the presence of excess oxygen over a highly copper exchanged ZSM-5 zeolite approximates that of propene. The onset of nitric oxide reduction does not require the presence of oxygen and therefore the partially oxygenated reductants are more active when the system is rich with stoichiometry. This observation supports the premise of an oxygenated intermediate when using hydrocarbon reductants. Cu-ZSM-5 does not catalyze the combustion of hydrocarbons or oxygenated organic compounds as cleanly as Cu/ gamma -Al//20//3. 14 Refs.

Descriptors: *NITROGEN OXIDES--*Reduction; CATALYSTS--Zeolites; ZEOLITES
--Ion Exchange; HYDROCARBONS--Derivatives; OXYGEN--Concentration; AIR
POLLUTION--Control

Identifiers: SELECTIVE NITRIC OXIDE REDUCTION; OXYGEN-CONTAINING ORGANIC
REDUCTANTS; PARTIALLY OXYGENATED REDUCTANTS; COPPER EXCHANGED ZEOLITE
CATALYSTS; NITRIC OXIDE REDUCTION CATALYSTS

Classification Codes:

804 (Chemical Products); 802 (Chemical Apparatus & Plants); 803
(Chemical Agents & Basic Industrial Chemicals); 451 (Air Pollution)
80 (CHEMICAL ENGINEERING); 45 (POLLUTION & SANITARY ENGINEERING)

2/9/7 (Item 1 from file: 94)

DIALOG(R) File 94:JICST-EPlus

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04481014 JICST ACCESSION NUMBER: 00A0076170 FILE SEGMENT: JICST-E

Vacuum Electrical Breakdown Characteristics of Oxygen-free Copper

Electrodes Processed Several Kinds of Surface Treatments.

SEKIKAWA KENTARO (1); KOBAYASHI SHIN'ICHI (1); ASANO KIYOMITSU (2); SAITO
YOSHIO (3)

(1) Saitama Univ.; (2) Akita Natl. Coll. of Technol.; (3) High Energy
Accelerator Research Organization

Denki Gakkai Hoden Kenkyukai Shiryo, 1999, VOL.ED-99,NO.175-182, PAGE.25-30
, FIG.8, TBL.2, REF.4

JOURNAL NUMBER: Z0911AAI

UNIVERSAL DECIMAL CLASSIFICATION: 621.3.03/.04

LANGUAGE: Japanese

COUNTRY OF PUBLICATION: Japan

DOCUMENT TYPE: Conference Proceeding

ARTICLE TYPE: Original paper

MEDIA TYPE: Printed Publication

ABSTRACT: The influence of ozonized water treatment on the conditioning
effect of a vacuum gap was investigated by applying impulse voltages.
In this study, He ion-beam sputtering was performed to electrodes
surfaces treated with ozonized water. The chemical compositions were
analyzed by the X-ray Photoelectron Spectroscopy(XPS) before and after
the ion-beam sputtering and after the repetitive breakdowns. As a
result, sputtered electrodes showed higher breakdown fields than those
of electrodes only treated with ozonized water. The results of the XPS
narrow-scan spectra confirmed that **organic** contaminants due to Carbon
were **removed** and **CuO** films were created on the electrode surfaces
by the ozonized water treatment. (author abst.)

DESCRIPTORS: electrode; oxygen free copper; ozonation; ion beam sputtering;
oxide film; dielectric strength; dielectric breakdown; vacuum discharge
; insulation test; surface treatment

BROADER DESCRIPTORS: copper; 1B group element; transition metal; metallic
element; element; fourth row element; treatment; sputtering; conversion
coating film; film(cover); membrane and film; resistance(endure);
electrical characteristic; characteristic; fracture; gas discharge;
electric discharge; test

CLASSIFICATION CODE(S): NA05090R

2/9/8 (Item 1 from file: 144)

DIALOG(R) File 144:Pascal

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15546926 PASCAL No.: 02-0246315

**The electrochemical quartz crystal microbalance as a means for studying
the reactivity of Cu SUB 2 O toward lithium**

LAIK Barbara; POIZOT Philippe; TARASCON Jean-Marie

Laboratoire de Reactivite et de Chimie des Solides, Universite de
Picardie Jules Verne, 80039 Amiens, France

Journal: Journal of the Electrochemical Society, 2002, 149 (3) A251-A255

ISSN: 0013-4651 CODEN: JES0AN Availability: INIST-4925;

354000100448740060

No. of Refs.: 23 ref.

Document Type: P (Serial) ; A (Analytic)
Country of Publication: United States
Language: English

Transition-metal oxides ($M \text{ SUB } x \text{ O SUB } y$ where M is Co, Ni, Cu, or Fe) were recently reported to reversibly react with Li through a mechanism that differs from the classical Li insertion/deinsertion or Li-alloying ones. We report on the peculiar electrochemical reactivity of copper oxide ($\text{Cu SUB } 2 \text{ O}$) toward lithium, as deduced from the use of an electrochemical quartz crystal microbalance (EQCM). First, the electrodeposition parameters (current, pH, temperature,) to prepare single-phase, homogeneous, and weight-controlled $\text{Cu SUB } 2 \text{ O}$ deposits on a Ti-plated quartz crystal are reported. Then, an electrochemical cell using the $\text{Cu SUB } 2 \text{ O}$ deposit as the positive electrode and Li as the negative electrode was cycled over the 3-0.02 V range, and the $\text{Cu SUB } 2 \text{ O}$ weight evolution was monitored. We show that the weight vs. the number of reacted Li $\text{SUP } +$ curve does not change smoothly, but exhibits different sloping weight regimes that were broadly linked to the different electrochemical processes (**reduction** of $\text{Cu SUB } 2 \text{ O}$ into Cu plus growth of an **organic** layer) already mentioned. Therefore, we show that these processes do not occur separately but in conjunction, highlighting the positive attributes of the EQCM technique.

English Descriptors: Secondary cell; Organic electrolyte storage battery; Metal metal oxide batteries; Electric batteries; Electrode material; Intercalation compound; Lithium ion; Copper oxide; Surface texture; Surface structure; Chemical reactivity; Quartz microbalance; Potential pH diagram; Electrical characteristic; Discharge charge cycle
Broad Descriptors: Alkali metal Ions; Transition metal Compounds; Metal alcalin Ion; Metal transition Compose; Metal alcalino Ion; Metal transicion Compuesto

French Descriptors: Accumulateur electrochimique; Accumulateur electrolyte organique; Batterie metal oxyde metallique; Batterie electrique; Materiau electrode; Compose insertion; Lithium ion; Cuivre oxyde; Texture surface; Structure surface; Reactivite chimique; Microbalance quartz; Diagramme potentiel pH; Caracteristique electrique; Cycle charge decharge

Classification Codes: 001D05I03E

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2/9/9 (Item 2 from file: 144)
DIALOG(R) File 144:Pascal
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13753622 PASCAL No.: 98-0465338

Preparation of CuO thin films on porous $\text{BaTiO SUB } 3$ by self-assembled multibilayer film formation and application as a $\text{CO SUB } 2$ sensor

ISHIHARA T; HIGUCHI M; TAKAGI T; ITO M; NISHIGUCHI H; TAKITA Y

Department of Applied Chemistry, Faculty of Engineering, Oita University, Dannoharu 700, Oita 870-1192, Japan; Research and Development Center, Oita University, Dannoharu 700, Oita 870-1192, Japan

Journal: Journal of materials chemistry, 1998, 8 (9) 2037-2042

ISSN: 0959-9428 Availability: INIST-22603; 354000070550320150

No. of Refs.: 18 ref.

Document Type: P (Serial) ; A (Analytic)

Country of Publication: United Kingdom

Language: English

Preparation of CuO thin films by decomposition of self-assembled multibilayer films as a molecular template was investigated. Furthermore, the $\text{CO SUB } 2$ sensing property of the resultant CuO thin films on a porous $\text{BaTiO SUB } 3$ was investigated as a capacitive type sensor. Self-assembled bilayer films of a few 1000 layers thickness can be readily obtained by casting an aqueous suspension composed of dimethyldihexadecylammonium bromide (DC1-16), $\text{Cu}(\text{CH SUB } 3 \text{ CO SUB } 2) \text{ SUB } 2$, hexadecylethylenediamine and poly(vinyl alcohol). Divalent copper ions ($\text{Cu SUP } 2 \text{ SUP } +$) which are

associated with two hexadecylethylenediamine molecules were arranged in the hydrophobic layer of the multibilayer film. Rapid heating to the combustion temperature of DC1-16 was desirable for removing organic molecules in the multibilayer template. Thin films of CuO can be obtained by calcination at temperatures higher than 573 K. The resultant CuO thin films were porous and consisted of fine particles. The capacitance of CuO thin films prepared from self-assembled multibilayer films as a molecular template on the BaTiO SUB 3 porous substrate exhibited a high sensitivity to CO SUB 2, which is twice that of a conventional mixed oxide capacitor of CuO-BaTiO SUB 3. The capacitance of CuO thin films on BaTiO SUB 3 increases with increasing CO SUB 2 concentration in the range from 100 ppm to 50% at 873 K. Consequently, it is concluded that CuO thin films on BaTiO SUB 3 were appropriate capacitive type CO SUB 2 sensors.

English Descriptors: Experimental study; Thin films; Chemical preparation; Gas sensors; Copper oxides; Binary compounds; Porous materials; Self assembly; Bilayers; Multilayers; Carbon dioxide; Suspensions; Heat treatments; Capacitance

Broad Descriptors: Inorganic compounds; Transition element compounds; Organic compounds; Compose mineral; Metal transition compose; Compose organique

French Descriptors: Etude experimentale; Couche mince; Preparation chimique; Capteur de gaz; Cuivre oxyde; Compose binaire; Materiau poreux; Autoassemblage; Bicouche; Multicouche; Carbone dioxyde; Suspension; Traitement thermique; Capacite electrique; 8115T; CuO; Cu O; Substrat BaTiO SUB 3 poreux

Classification Codes: 001B80A15T; 001C04A

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2/9/10 (Item 3 from file: 144)
DIALOG(R) File 144:Pascal
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12004844 PASCAL No.: 95-0193245

Coating of uniform inorganic particles with polymers. II: Polyaniline on copper oxide

CHIN-LIN HUANG; PARTCH R E; MATIJEVIC E

Clarkson univ., cent. advanced materials processing, Potsdam NY
13699-5814, USA

Journal: Journal of colloid and interface science, 1995, 170 (1) 275-283
ISSN: 0021-9797 CODEN: JCISA5 Availability: INIST-4124;
354000059597970360

No. of Refs.: 34 ref.

Document Type: P (Serial) ; A (Analytic)

Country of Publication: USA

Language: English

Uniform spherical colloidal copper oxide particles were coated with polyaniline in the reaction mixtures containing CuO, aniline, water, ethanol, and polyvinyl alcohol (PVA) without the use of a soluble oxidant. The final dispersion consisted of a mixture of CuO with a polymer shell and independent polyaniline (latex) particles. The reaction between aniline and CuO follows the well-known mechanism by which the metal oxide undergoes reductive dissolution while the organic monomer is oxidized. Oxygen and PVA are essential to the polymerization of aniline in the system. Oxygen may function as an oxidant to promote the polymerization, while PVA forms micelles that enhance the reaction rate through emulsion polymerization and protect polyaniline from hydrolysis. A temperature higher than 90 SUP o C is necessary for the reaction to achieve a coating of more than 10% by weight in 48 h. The thickness of the polymer shell can be adjusted by changing the reaction time and the concentrations of aniline, copper oxide, and ethanol. The structure of the produced polymer corresponds to that of polyleucoemeraldine

English Descriptors: Experimental study; Liquid solid adsorption; Inorganic adsorbent; Copper oxide-SUB; Organic adsorbate; Aniline polymer-SEC; Polyvinylalcohol-SEC; Transmission electron microscopy; Colloid particle; Latex; Infrared spectrometry; Thermogravimetry
Broad Descriptors: Transition metal Compounds; Metal transition Compound; Metal transition Compound

French Descriptors: Etude experimentale; Adsorption liquide solide; Adsorbant mineral; Cuivre oxyde-SUB; Adsorbant organique; Aniline polymere-SEC; Vinylique alcool polymere-SEC; Microscopie electronique transmission; Particule colloïdale; Latex; Spectrometrie IR; Thermogravimetrie

Classification Codes: 001D09D04H

2/9/11 (Item 4 from file: 144)
DIALOG(R) File 144:Pascal
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10769930 PASCAL No.: 93-0279283
Oxidation, reduction, and isomerization of allyl alcohol and 1-propanol over Cu SUB 2 O (100)
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Journal: Journal of physical chemistry : (1952), 1993, 97 (3) 647-655
ISSN: 0022-3654 CODEN: JPCHAX Availability: INIST-549;
354000038376230190
No. of Refs.: 28 ref.
Document Type: P (Serial) ; A (Analytic)
Country of Publication: USA
Language: English

The reactivity of allyl alcohol and 1-propanol has been studied with TDS and XPS on the polar, Cu SUP + -terminated, Cu SUB 2 O(100) surface. Allyl alcohol reacts on the (100) surface to give selective and nonselective oxidation products (acrolein, CO, CO SUB 2, H SUB 2 O), an isomerization product (propionaldehyde), and a reduction product (propene). 1-Propanol also reacts on the (100) surface to give selective and nonselective oxidation products (acrolein, propionaldehyde, CO, CO SUB 2, H SUB 2 O) and a reduction product (propene). Both alcohols dissociatively adsorb to form alkoxides